

PARTICLE-BOUND HUMAN IMMUNODEFICIENCY VIRUS ENVELOPE
GLYCOPROTEINS AND RELATED COMPOSITIONS AND METHODS

5 Abstract of the Disclosure

10 This invention provides a first composition comprising a pharmaceutically acceptable particle and a stable HIV-1 pre-fusion envelope glycoprotein trimeric complex operably affixed thereto. This invention further provides a second composition comprising (a) a pharmaceutically acceptable particle, (b) an antigen, and (c) an agent which is operably affixed to the particle and is specifically bound to the
15 antigen, whereby the antigen is operably bound to the particle. Finally, this invention provides related nucleic acids, vectors, cells, compositions, production methods, and prophylactic and therapeutic methods.